

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Exam: Function Reflections (Practice version 2)**

1. Let function  $f$  be defined by the polynomial below:

$$f(x) = -8x^4 + 7x^3 - 9x^2 - 2x + 6$$

Draw lines that match each function reflection with its polynomial:

**Reflections**

$-f(-x)$  ●

$f(-x)$  ●

$-f(x)$  ●

**Polynomials**

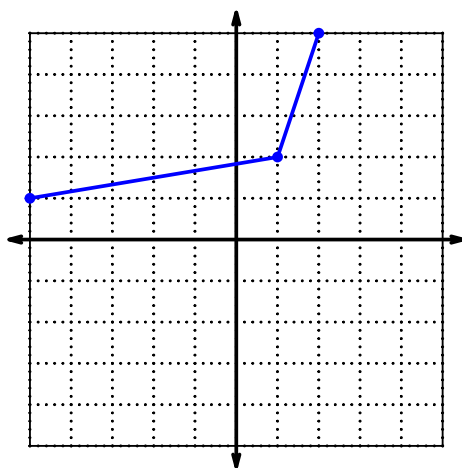
●  $8x^4 - 7x^3 + 9x^2 + 2x - 6$

●  $8x^4 + 7x^3 + 9x^2 - 2x - 6$

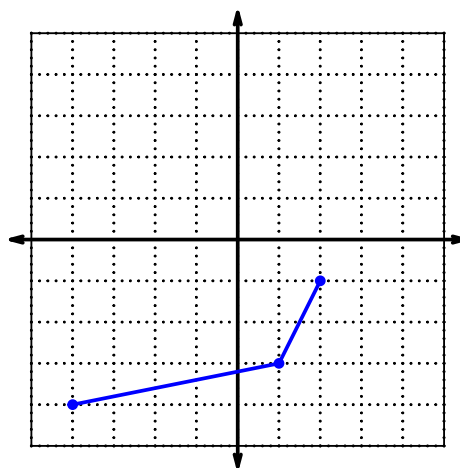
●  $-8x^4 - 7x^3 - 9x^2 + 2x + 6$

2. In each  $xy$  plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The  $x$  axis is horizontal and the  $y$  axis is vertical (as typical), and the scale is equal on both axes.

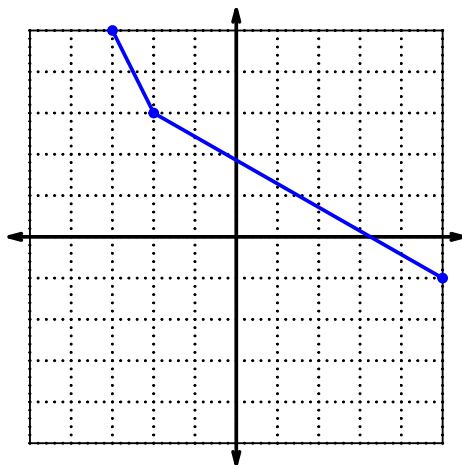
●  $y = g(x)$   
●  $y = g(-x)$



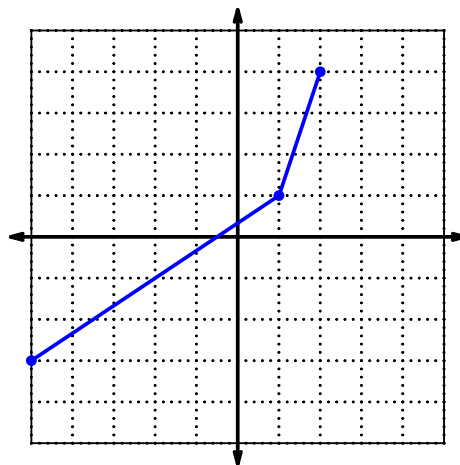
●  $y = h(x)$   
●  $y = -h(x)$



●  $y = m(x)$   
●  $y = m^{-1}(x)$



●  $y = p(x)$   
●  $y = -p(-x)$



## Exam: Function Reflections (Practice version 2)

For all questions on this page, the functions  $f$ ,  $g$ , and  $h$  are defined by the table below.

$x$	$f(x)$	$g(x)$	$h(x)$
1	2	5	7
2	7	8	3
3	4	6	8
4	9	2	2
5	3	7	1
6	5	9	9
7	6	3	4
8	1	4	6
9	8	1	5

3. Evaluate  $f(5)$ .

4. Evaluate  $g^{-1}(4)$ .

5. Assuming  $f$  is an **even** function, evaluate  $f(-1)$ .

6. Assuming  $h$  is an **odd** function, evaluate  $h(-6)$ .

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7. A function,  $f$ , is **even** if  $f(x) = f(-x)$  for all  $x$  in the domain. A function,  $g$ , is **odd** if  $g(x) = -g(-x)$  for all  $x$  in the domain.

Let polynomial  $p$  be defined with the following equation:

$$p(x) = x^2 - 1$$

- a. Express  $p(-x)$  as a polynomial in standard form.

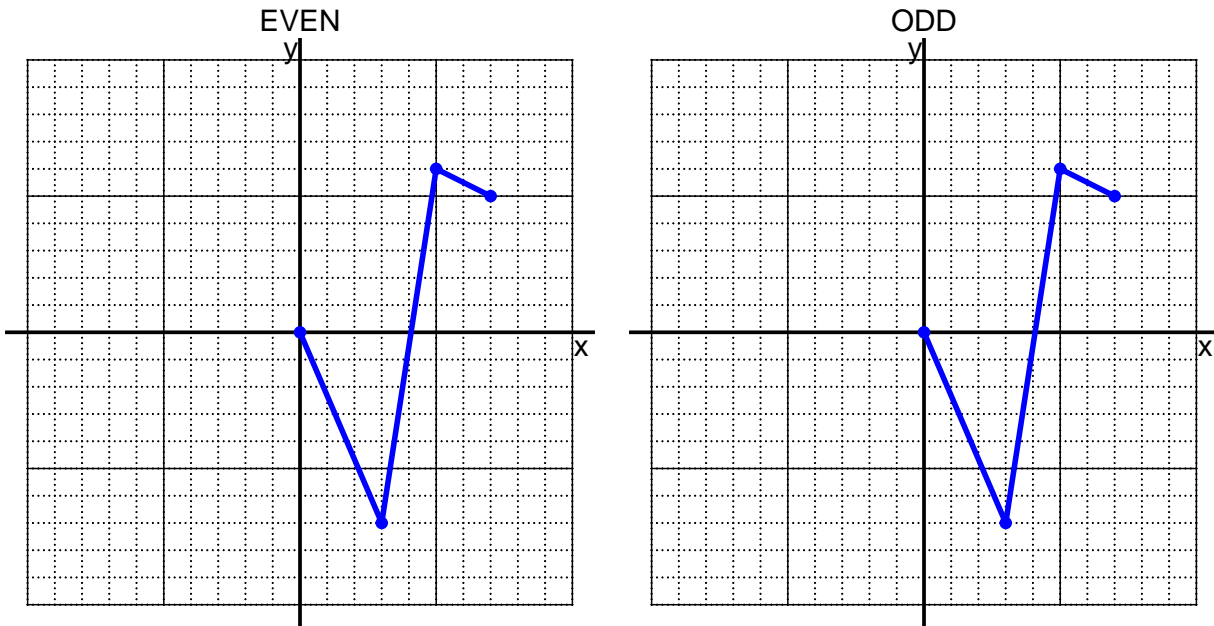
- b. Express  $-p(-x)$  as a polynomial in standard form.

- c. Is polynomial  $p$  even, odd, or neither?

- d. Explain how you know the answer to part c.

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8. I have drawn half of a function. Draw the other half to make it even or odd.



9. Let function  $f$  be defined with the equation below.

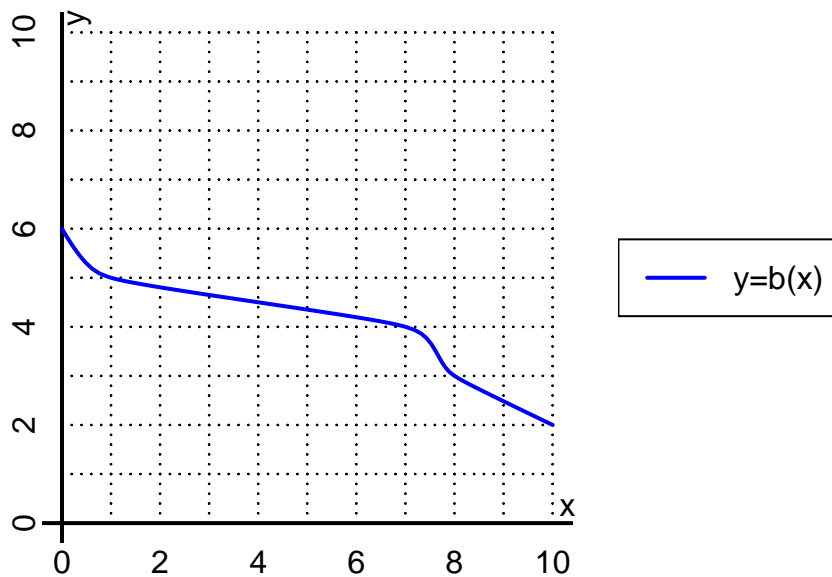
$$f(x) = \frac{x+5}{2}$$

- a. Evaluate  $f(41)$ .

- b. Evaluate  $f^{-1}(24)$ .

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10. The function  $b$  is represented by the curve  $y = b(x)$  graphed below.



a. Evaluate  $b(8)$ .

b. Evaluate  $b^{-1}(5)$ .

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11. Function  $f$  is defined by the table below.

a. Complete the columns for  $-f(x)$  and  $f(-x)$  and  $-f(-x)$ .

$x$	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	-5			
-1	6			
0	0			
1	-6			
2	5			

b. Is function  $f$  even, odd, or neither?

c. How do you know the answer to part b?